

VI. Clinical Asthma Control

Most of the life disruption caused by asthma could be avoided if people with asthma and their healthcare providers managed the disease according to established guidelines. Effective asthma control reduces the need for hospitalizations and urgent care visits (in either an emergency department or physician's office) and enables patients to enjoy normal activities.^{i,ii} Asthma control could also reduce the significant cost of hospital care for asthma, compared to the more frequently used and less costly outpatient and pharmaceutical services. As discussed earlier (see Figure 5) single individuals can contribute substantially to the healthcare system burden through multiple urgent care visits, thus careful asthma control for even a small number of people with asthma might have substantial benefits.

Effective control of asthma includes four components: avoiding or controlling the factors that may make asthma worse (for example, environmental and occupational allergens and irritants), taking appropriate medications tailored to the severity of the disease, objective monitoring of the disease by the patient and the healthcare professional, and actively involving people with asthma in managing their own disease.ⁱⁱⁱ This chapter discusses disease management components that involve a healthcare provider. The next chapter (Chapter VII) discusses environmental and self-management of exposures.

A. Classifying Asthma

The severity of asthma can be classified based on symptoms and lung function. Public health surveillance data do not include estimates of an individual's lung function, however severity can be estimated using information about symptoms.^{iv} These classifications are based on criteria described by the National Heart, Lung and Blood Institute (see Table 1).^v

Although this classification system is convenient, it is likely to substantially underestimate true asthma severity and burden of disease for the individual, and thus should be interpreted somewhat cautiously.^{vi} Individuals classified with greatest symptom severity may either have clinically severe asthma that is resistant to therapy, or have asthma that is poorly controlled (insufficient or ineffective clinical strategies, or continued exposure to environmental triggers). Individuals classified with lesser symptom severity may in fact have clinically more severe asthma that is well-controlled.

Questions about frequency of symptoms and frequency of sleep interruption as a result of symptoms were included in the 2001 BRFSS (for adults) and the 2004 HYS (for youth in 8th, 10th, 12th grades). Results from the specific questions were presented in Chapter II.

Table 1: Asthma symptom severity classifications

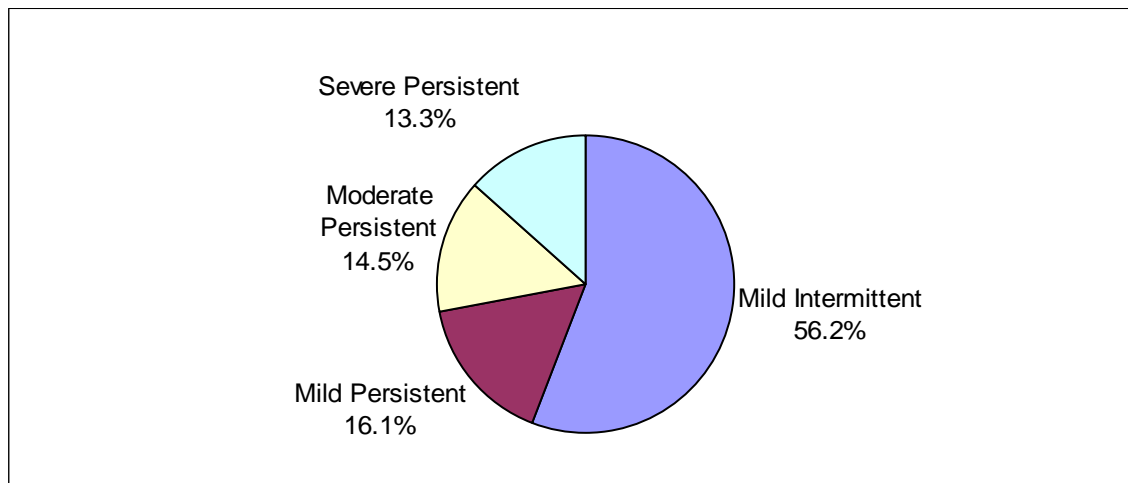
Severity Classification	Symptoms	Nighttime Symptoms	Lung Function
Step 4: Severe Persistent	<ul style="list-style-type: none"> Continual symptoms Limited physical activity Frequent exacerbations 	Frequent	<ul style="list-style-type: none"> FEV₁ or PEF $\leq 60\%$ predicted PEF variability $> 30\%$
Step 3: Moderate Persistent	<ul style="list-style-type: none"> Daily symptoms Daily use of inhaled short-acting beta₂-agonist Exacerbations after activity Exacerbations ≥ 2 times a week; may last days 	>1 time a week	<ul style="list-style-type: none"> FEV₁ or PEF $>60\%$-$<80\%$ predicted PEF variability $> 30\%$
Step 2: Mild Persistent	<ul style="list-style-type: none"> Symptoms >2 times a week but <1 time per day Exacerbations may affect activity 	>2 times a month	<ul style="list-style-type: none"> FEV₁ or PEF $\geq 80\%$ predicted PEF variability 20-30%
Step 1: Mild Intermittent	<ul style="list-style-type: none"> Symptoms ≤ 2 times a week Asymptomatic and normal PEF between exacerbations Exacerbations brief (from a few hours to a few days); intensity may vary 	≤ 2 times a month	<ul style="list-style-type: none"> FEV₁ or PEF $\geq 80\%$ predicted PEF variability $<20\%$

Classifications based on criteria described by the National Heart, Lung and Blood Institute^{vii}

FEV₁=forced expiratory volume in one second, the volume of air exhaled after a maximum inspiration; PEF = peak expiratory flow, the speed of exhale with the greatest effort possible.

Using the symptom severity classification described above, more than half of Washington adults with current asthma can be described as having “mild intermittent” symptoms, and approximately equal shares of adults have “mild persistent”, “moderate persistent”, and “severe persistent” asthma symptom severity.

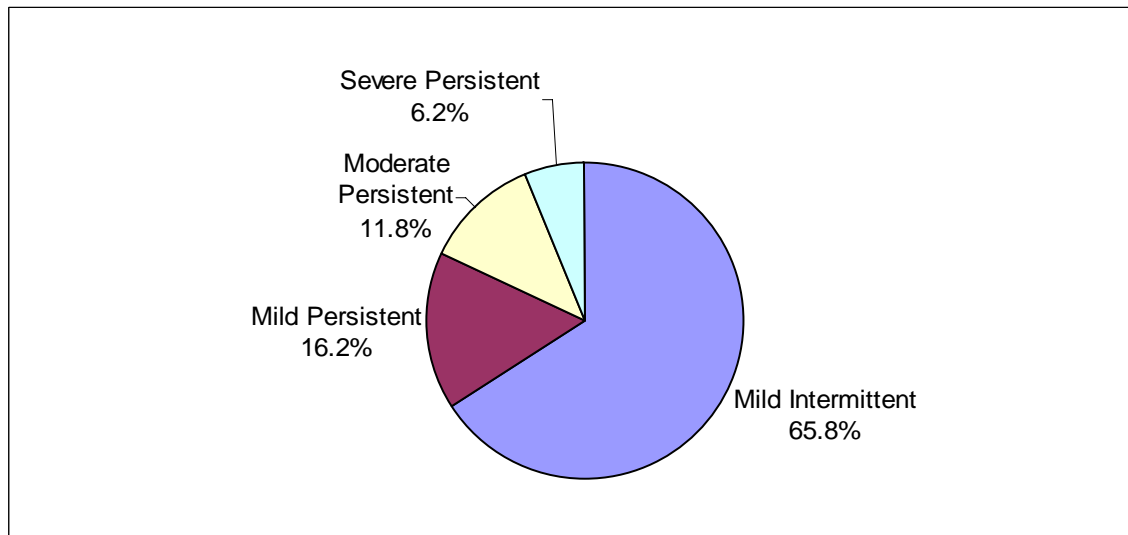
Figure 1: Distribution of asthma symptom severity among Washington adults with current asthma



Source: 2001 Washington State Behavioral Risk Factor Surveillance System (BRFSS)

Among youth with current asthma, about two-thirds can be classified as having “mild intermittent” symptom severity, and fewer than one in ten have “severe persistent” asthma symptom severity.

Figure 2: Distribution of asthma symptom severity among Washington youth with current asthma

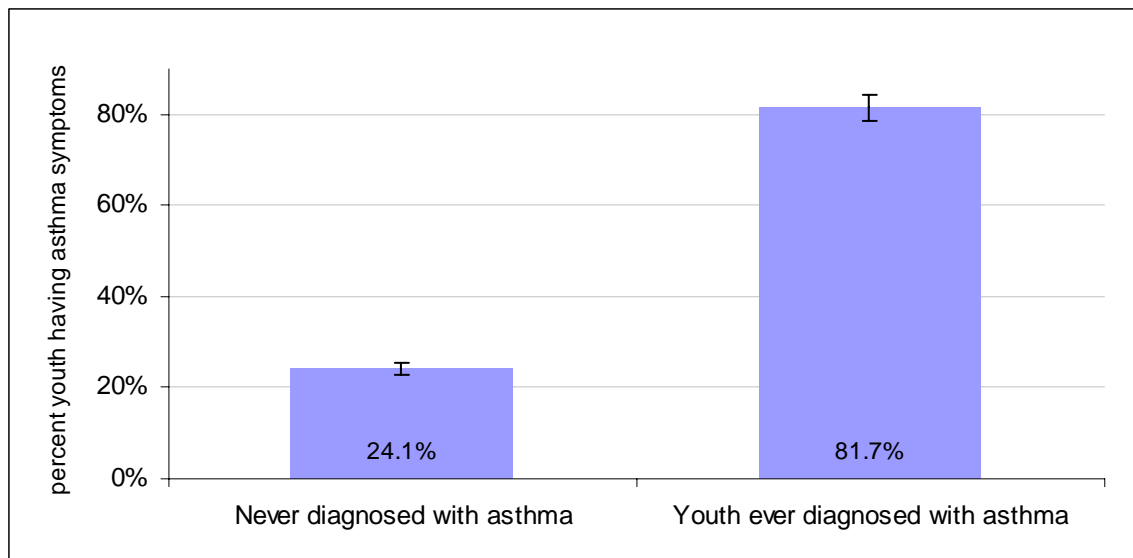


Source: 2004 Washington State Healthy Youth Survey (HYS), combined results for 8th-10th-12th grade students

Direct comparison of youth and adult asthma symptom severity, and apparent differences in distributions of severity, may be related to youth not understanding or inaccurately reporting on questions about their symptoms. Differences may also be the result of under-diagnosis of asthma or recently developed clinical asthma that has not yet been diagnosed.

As discussed previously related to the definition of asthma (Chapter III, Section A), adult telephone surveys “skip” additional questions specific to asthma if respondents do not have asthma. Paper-based youth survey questionnaires that do not utilize “skip patterns” (the HYS does not) mean that youth must respond to all questions. In the 2004 HYS, youth were specifically directed to respond to a question about whether they had asthma symptoms *regardless of whether they had been diagnosed with asthma by a healthcare professional*. Among youth who had never been diagnosed with asthma, about one in four indicated that they had asthma symptoms (cough, wheezing, shortness of breath, chest tightness and phlegm production when a person does not have a cold or respiratory infection) during the past month (see Figure 51). The self-report of asthma symptoms without a diagnosis of asthma could be at least partly due to undiagnosed asthma in the youth population.

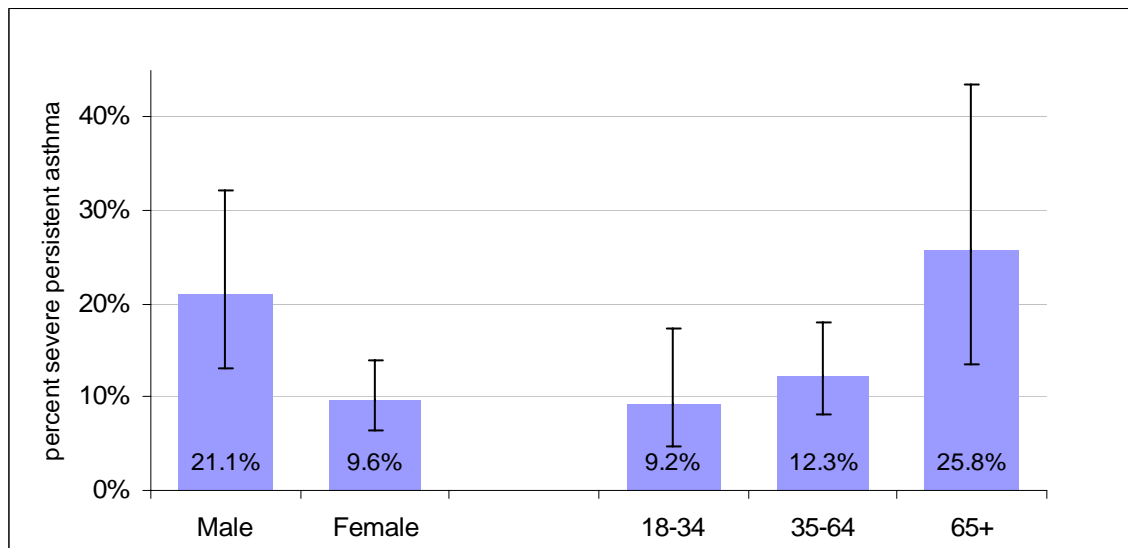
Figure 3: Prevalence of asthma symptoms by lifetime asthma status among Washington youth



Source: 2004 Washington State Healthy Youth Survey (HYS), combined results for 8th-10th-12th grade students

Previous discussion (Chapter IV, Section A) indicated that adult hospitalization rates differ by age and gender: females have higher rates than males, and the oldest adult age groups have higher rates than younger age groups. Similar to hospitalization and death rates, “severe persistent” symptoms among adults with asthma appear to increase with age and are highest among adults age 65 and older (see Figure 52, $p=.04$ for trend). In contrast to hospitalization and death rates, which were consistently higher for females, females were less than half as likely as males to report “severe persistent” symptom severity ($p=.01$). This could be explained by either under-reporting of severe symptoms by females (which seems unlikely), or, more likely, under-reporting of current asthma by male adults, resulting from minimization of mild symptoms by males.

Figure 4: Prevalence of severe persistent symptom severity by age and gender among Washington adults with asthma

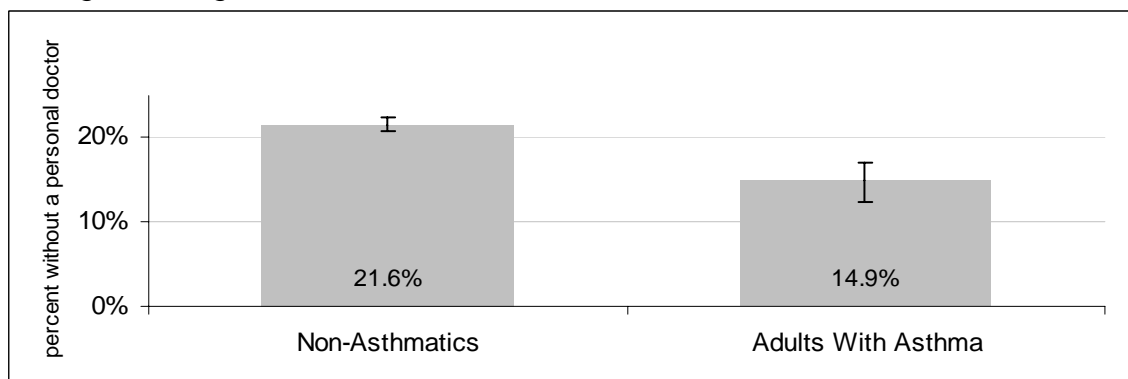


Source: 2001 Washington State Behavioral Risk Factor Surveillance System (BRFSS).

B. Access to Healthcare

Effective clinical management of asthma relies first upon access to a healthcare provider. Fewer adults with asthma than adults without asthma reported not having a personal doctor (see Figure 53, $p < .001$). This suggests that most people with asthma have identified a place to go for their healthcare needs. However, these numbers also mean that almost 60,000 Washington adults with asthma lack an identified personal healthcare provider.

Figure 5: Prevalence of not having a personal doctor by asthma status, among Washington adults

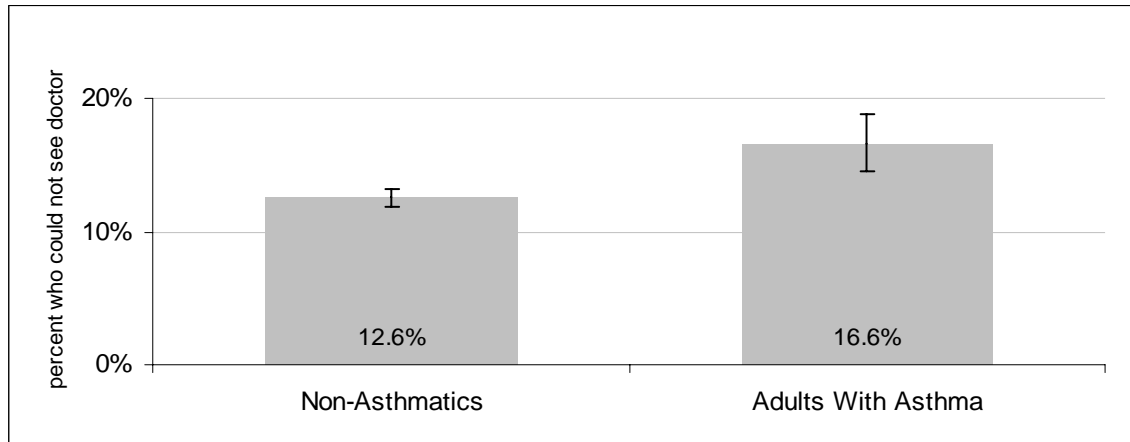


Source: 2003 Washington State Behavioral Risk Factor Surveillance System (BRFSS)

Visiting a healthcare provider may be prevented by various factors such as travel, financial, or psychological barriers. Because asthma is associated with lower income, it is important to acknowledge that although an individual may have a healthcare provider,

they may not be able to access that provider as often as desired due to lack of money. Adults with asthma were more likely than adults without asthma to report being unable to see a doctor during the past year because of the cost (see Figure 54, $p < .001$).

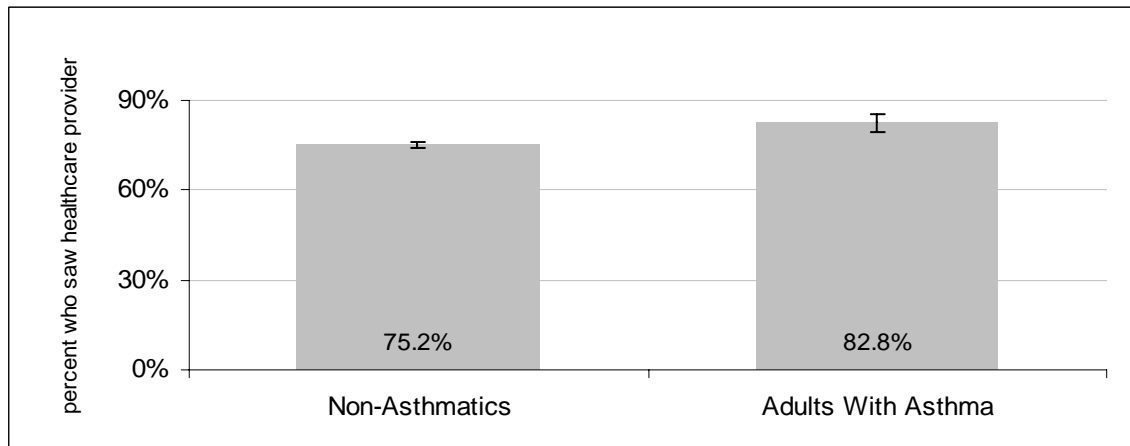
Figure 6: Prevalence of unmet healthcare needs by asthma status, among Washington adults



Source: 2003 Washington State Behavioral Risk Factor Surveillance System (BRFSS).

Most Washington adults visited a healthcare provider during the previous year for a routine checkup (see Figure 55, $p < .001$). Although people with asthma had been more likely to report not being able to see a doctor when they needed care because of money, they were also more likely than adults without asthma to have actually visited a doctor for a routine checkup (for any reason).

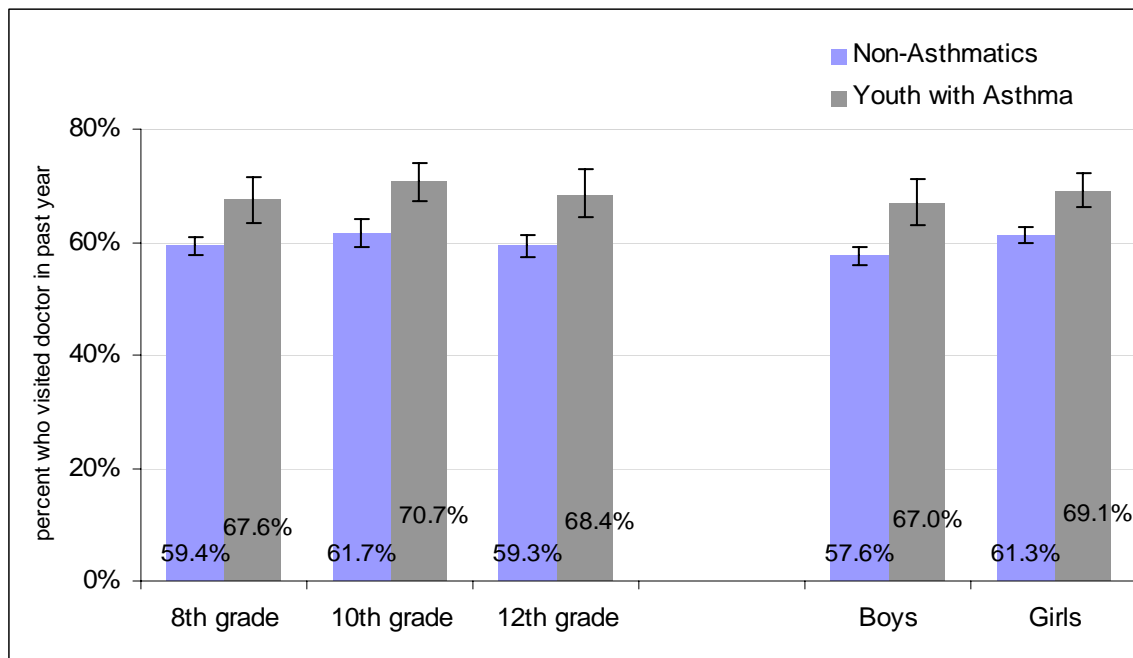
Figure 7: Prevalence of past-year routine healthcare visit (any reason) by asthma status, among Washington adults



Source: 2003 Washington State Behavioral Risk Factor Surveillance System (BRFSS).

As with adults, youth with asthma were more likely than youth without asthma to have seen a healthcare provider during the previous year for a checkup, regardless of grade or gender ($p < .001$). Boys were less likely than girls (with or without asthma) to have seen a healthcare provider for a checkup during the previous year ($p < .001$).

Figure 8: Prevalence of past-year routine healthcare visit (any reason) by grade or gender and asthma status, among Washington youth

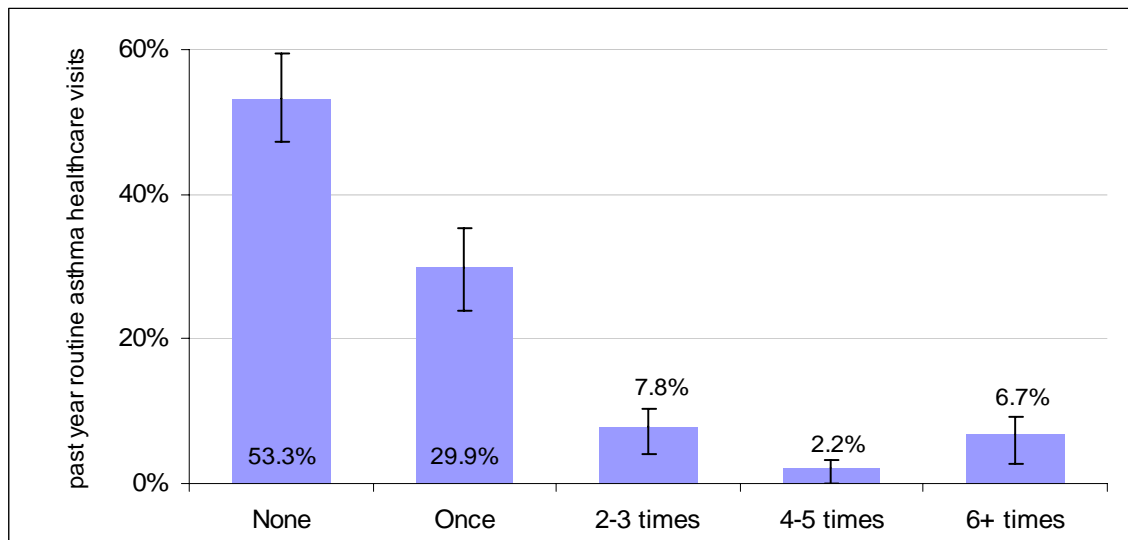


Source: 2002 and 2004 combined Washington State Healthy Youth Survey (HYS), grade-standardized for boy/girl estimates.

The previously discussed associations (see Chapter V, Section C) for youth asthma with inhaled intoxicant use, marijuana use, depression and suicidal thoughts indicate that youth presenting with asthma may benefit from comprehensive support strategies.

People with asthma were specifically asked about the last time they visited their healthcare provider as part of a routine visit for asthma control (that is, not in response to an acute episode or as part of a different visit). About half of adults with asthma reported that they had seen a healthcare provider during the previous year for this reason, and most (30%) visited only once (see Figure 57).

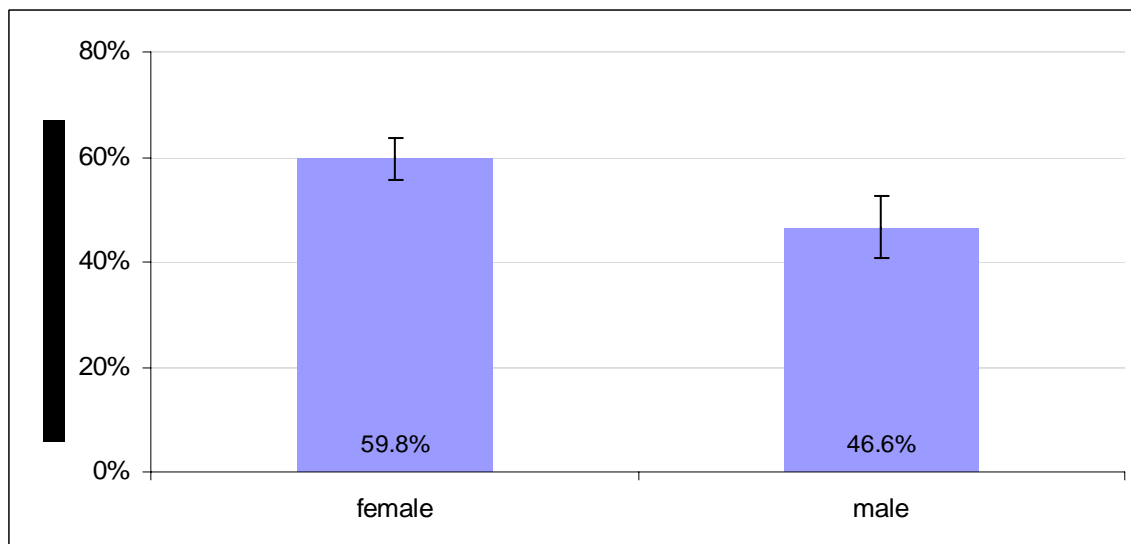
Figure 9: Distribution of past-year routine asthma healthcare visit frequency among Washington adults with asthma



Source: 2001 Washington State Behavioral Risk Factor Surveillance System (BRFSS)

Washington youth with asthma were also asked whether they had visited a healthcare provider during the previous year for a routine asthma visit. About half of youth overall with asthma had visited a doctor for an asthma checkup in the previous year (see Figure 58). There were not differences by grade, but boys with asthma were less likely than girls to report having a routine asthma visit ($p < .001$).

Figure 10: Distribution of past-year routine asthma healthcare visits by gender, among Washington youth with asthma



Source: 2004 Washington State Healthy Youth Survey (HYS), combined results for 8th-10th-12th grade students.

C. Quality of Asthma Healthcare

Beyond assuring that people with asthma have access to any care, assuring good quality of care is essential. This means that the healthcare provider follows research-based clinical guidelines for treating and managing asthma. Guidelines have been described as part of Healthy People 2010 Objectives, although targets for achieving those objectives have not been established.

Healthy People 2010 Objective 24-7

Increase the proportion of people with asthma who receive appropriate asthma care according to National Asthma Education and Prevention Program (NAEPP) Guidelines.

- a. People with asthma receive written asthma management plans from their healthcare provider.
- b. People with asthma with prescribed inhalers receive instruction on how to use them properly.
- c. People with asthma receive education about recognizing early signs and symptoms of asthma episodes and how to respond appropriately, including instruction on peak flow monitoring for those who use daily therapy.
- d. People with asthma receive medication regimens that prevent the need for more than one canister of short-acting inhaled beta agonists per month for relief of symptoms.
- e. People with asthma receive follow-up medical care for long-term management of asthma after any hospitalization due to asthma.
- f. People with asthma receive assistance with assessing and reducing exposure to environmental risk factors in their home, school, and work environments.

(Targets not established)

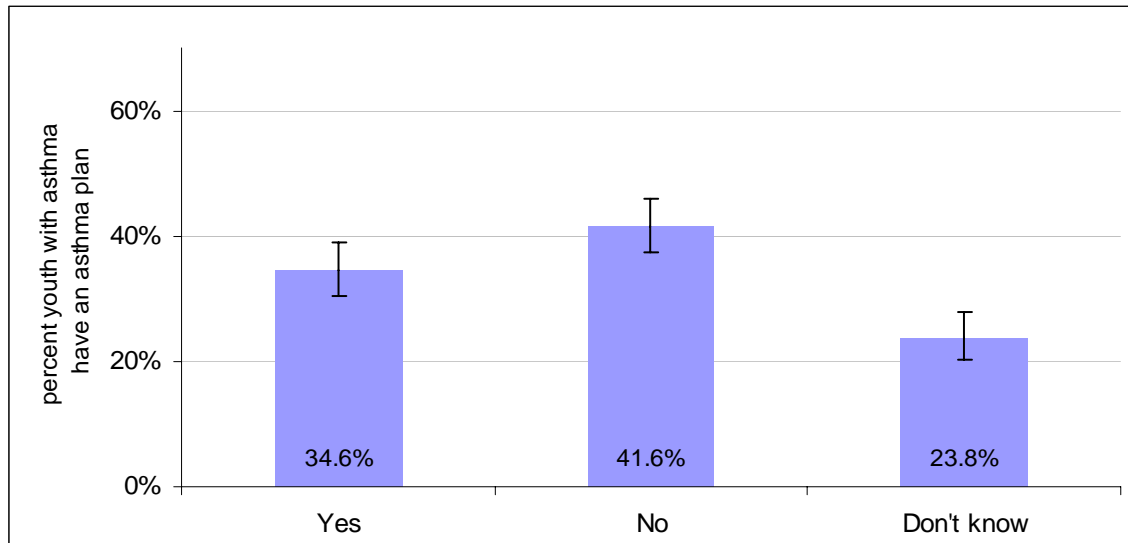
Written Asthma Management/Action Plans

Part of the guidelines for care cited above is receiving a written asthma management/action plan from a healthcare provider. Data for adults are not available, but youth were asked whether they had ever received a written asthma plan from their healthcare provider.

About one-third of youth with asthma had received a written asthma management/action plan from their healthcare provider (see Figure 59). An additional 24% did not know whether they had received a plan, but as the purpose of the plan is to provide instruction about pharmaceutical and self-management strategies, the plan can only be considered effective if the youth are aware of it. There were no differences by grade or gender for receiving a written asthma management/action plan.

This question asks about “ever” receiving an asthma plan, and it is important that asthma plans are kept current. Asthma management/action plans may need updating as symptoms change over time, particularly for youth, among whom clinical expression of asthma may change with the onset of puberty.

Figure 11: Prevalence of ever having a written “asthma plan,” among Washington youth with asthma



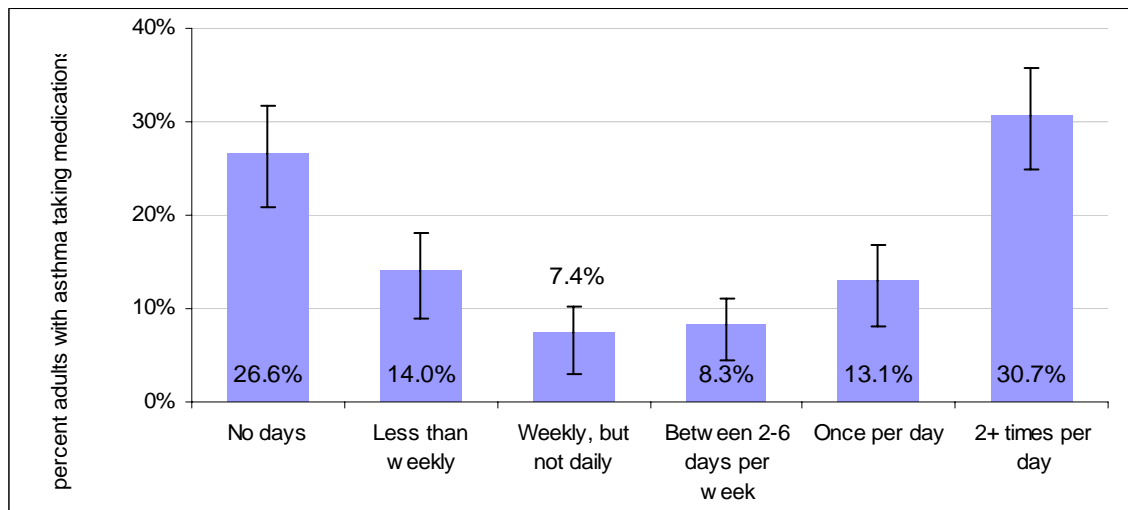
Source: 2004 Washington State Healthy Youth Survey (HYS), combined results for 8th-10th-12th grade students.

Asthma Medications

Medications are administered with the primary goal of prevention asthma attacks for people with asthma. Medicine for asthma is different for each person. It can be inhaled or taken as a pill and comes in two types—quick-relief (“rescue” medication, typically an inhaler) and long-term control. Long-term control medicines are usually used daily to reduce the frequency and severity of asthma attacks, but they are not effective during an attack. Error! Bookmark not defined. Quick-relief medicines control the symptoms of an asthma attack, and a goal of good asthma control is to use them only rarely. If a person with asthma is using quick-relief medicines more and more, this indicates inadequate control strategies and a need to change the control medications and/or the asthma management/action plan.

About 73% of Washington adults with asthma reported taking some form of medicine for their asthma in the past month, including both control and rescue medications (see Figure 60). About 44% of people with asthma take asthma medication every day, with nearly one-third taking asthma medication two or more times per day.

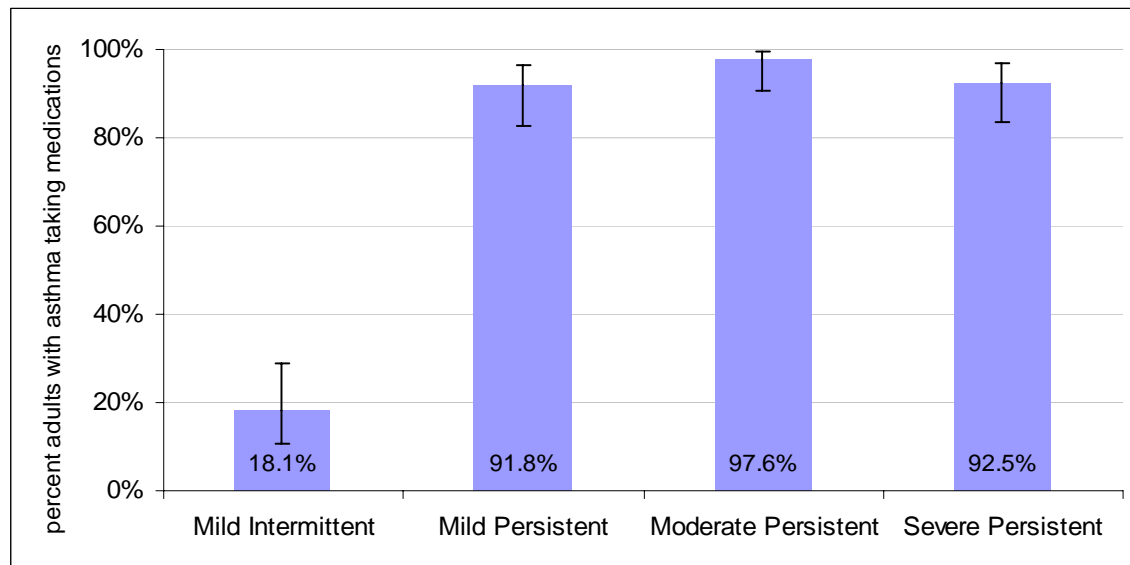
Figure 12: Distribution of asthma medication use frequency during past month, among Washington adults with asthma



Source: 2001 Washington State Behavioral Risk Factor Surveillance System (BRFSS). [Note: Some people who take asthma medication less often than every month may be counted in the "No days" category.]

Not all people with asthma require medications to control their symptoms. Adults were stratified by their symptom severity to identify what proportion were taking medications of any type (note that this would include both "control" and "rescue" medications). Only about one in five adults with mild intermittent asthma reported taking medications for asthma (see Figure 61). More than 90% of adults with each category of persistent asthma reported taking medications for their asthma in the prior month. All adults with persistent asthma, particularly moderate to severe persistent asthma, should have some type of medications available. Lack of medical coverage or barriers to utilization of healthcare may be reasons why people with asthma do not have needed medications.

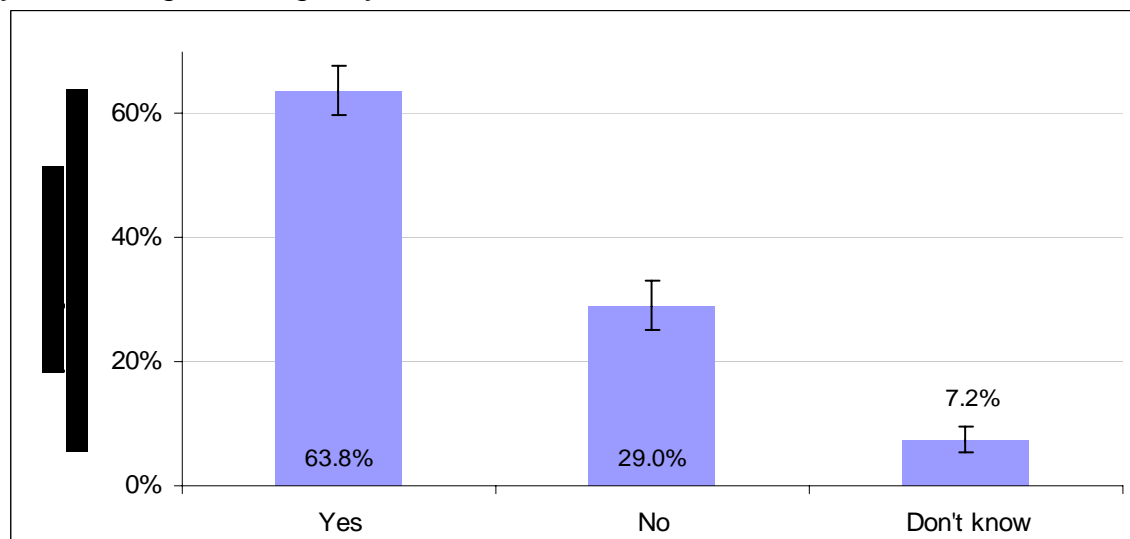
Figure 13: Prevalence of asthma medication use during past month by symptom severity, among Washington adults with asthma



Source: 2001 Washington State Behavioral Risk Factor Surveillance System (BRFSS).

Among youth with any type of asthma, nearly two-thirds reported taking daily preventive medication for their asthma during the past year (see Figure 62). Preventive medication is different than “rescue” medications taken during an asthma attack; the adult question about use of medication did not distinguish between preventive and rescue medication. There were no differences for taking asthma medication by grade or gender.

Figure 14: Prevalence of daily preventive asthma medication use during past year, among Washington youth with asthma



Source: 2004 Washington State Healthy Youth Survey (HYS), combined results for 8th-10th-12th grade students.

Patient Education

Washington has not assessed the proportion of people with asthma who receive formal patient education to manage their asthma, but this is a recommended component of good asthma care (see HP2010 Objective 24-6 in box for components of care). A national survey showed that only 8.4% of persons with asthma received formal patient education in 1998.^{viii}

Healthy People 2010 Objective 24-6

Increase the proportion of people with asthma who receive formal patient education, including information about community and self-help resources, as an essential part of the management of their condition.

Target:

- 30% or more of people with asthma*

* age-adjusted to year 2000 standard population

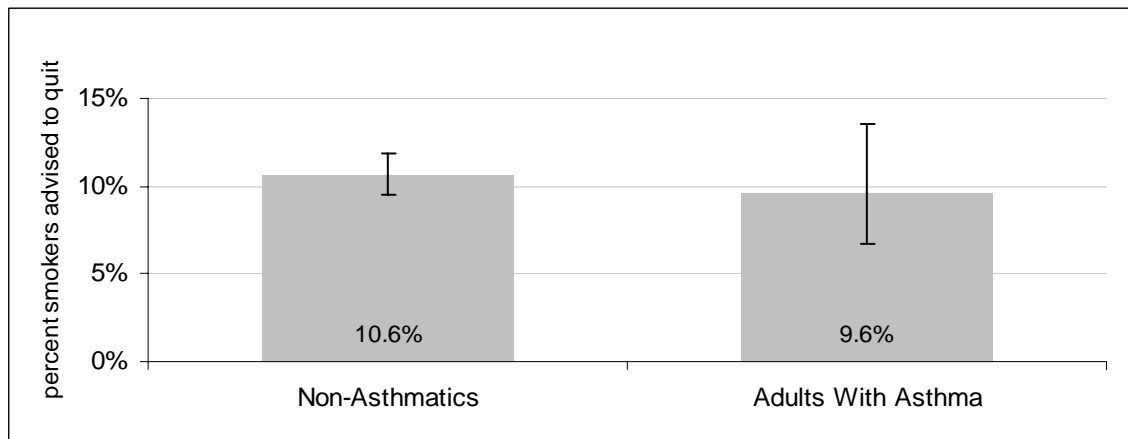
Smoking Interventions

As described previously (Chapter V, Section A), smoking is common among people with asthma. Research suggests that smoking cessation reduces asthma severity,**Error!**

Bookmark not defined. and thus, all smokers with asthma should be highly encouraged to quit and to maintain successful quitting. An important component of the National Asthma Expert Panel Paper (NAEPP) clinical guidelines for treatment and control of asthma is for physicians to advise patients with asthma who smoke to quit.

Washington adults with asthma did not, however, report more advice to quit smoking from a healthcare provider in comparison to people without asthma (see Figure 63), despite more use of healthcare. Overall, about one in ten smokers – regardless of asthma status – reported receiving advice to quit from a healthcare provider during the previous year, suggesting that more work remains to promote smoking interventions with all patients in healthcare settings.

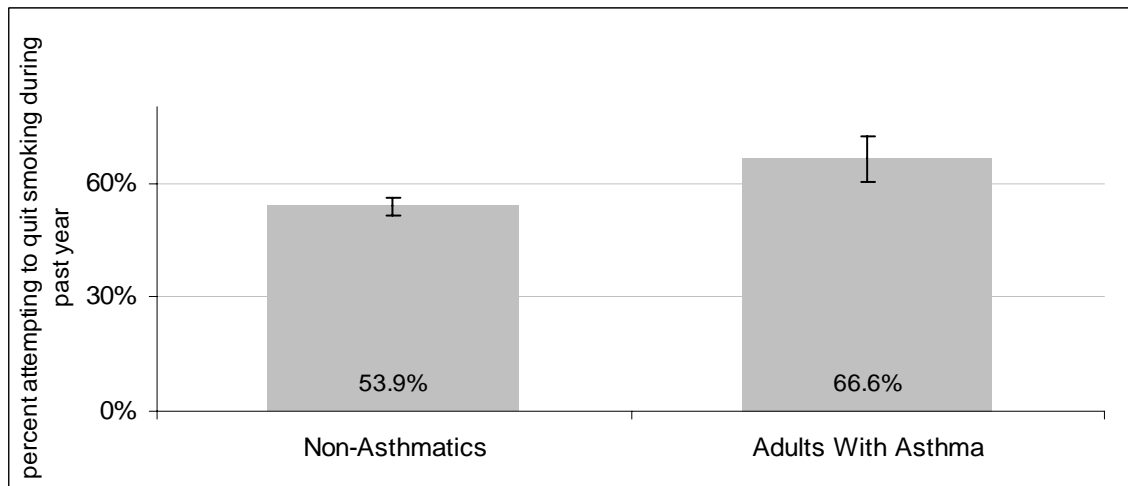
Figure 15: Prevalence of receiving advice to quit smoking during the past year by asthma status, among Washington adult smokers



Source: 2003 Washington State Behavioral Risk Factor Surveillance System (BRFSS). non-significant difference.

Washington data indicate that smokers with asthma were more likely to have tried to quit during the previous year than people without asthma (see Figure 64, $p < .001$). This suggests that people with asthma who smoke are more motivated to quit than the general population of smokers, and could be receptive to advice or support for quitting offered by a healthcare provider.

Figure 16: Prevalence of past-year quit attempts by asthma status, among Washington adult smokers



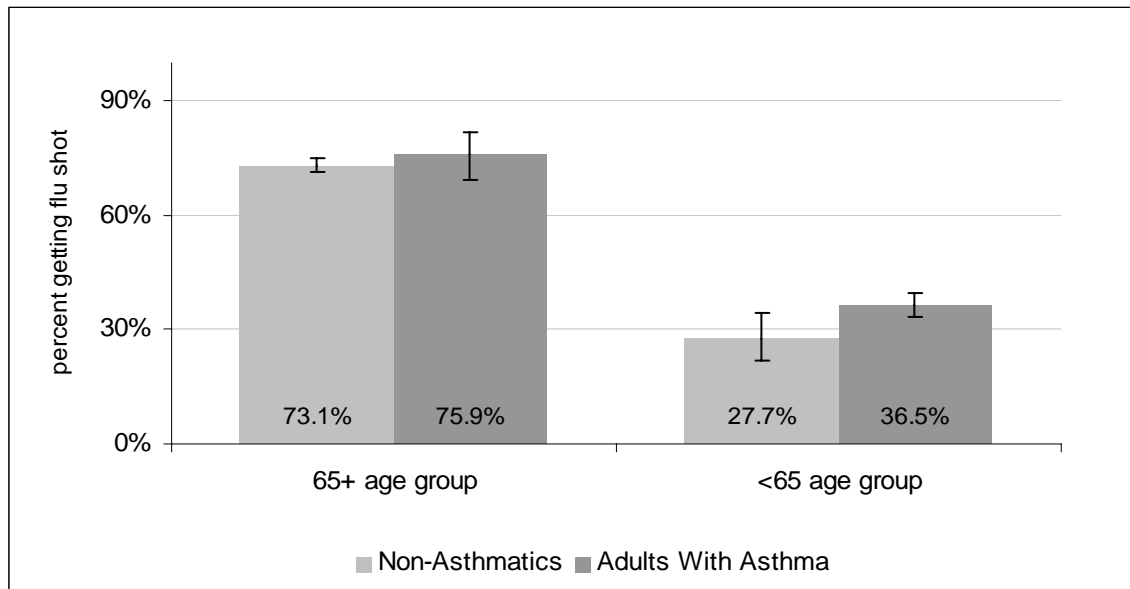
Source: 2003 Washington State Behavioral Risk Factor Surveillance System (BRFSS).

Preventive Vaccines

Another specific element of the NAEPP clinical practice guidelines for control of asthma is that people with asthma should receive preventive vaccines for respiratory conditions such as flu and pneumonia. Most seniors (age 65 and older) are encouraged to get a flu shot regardless of their asthma status.

Flu vaccines are generally given annually. Among seniors, people with asthma and people without asthma were similarly likely to have received a flu vaccine during the past year (see Figure 65). Among people younger than 65, those with asthma were significantly more likely to have gotten a flu shot during the past year than those without asthma ($p<.001$).

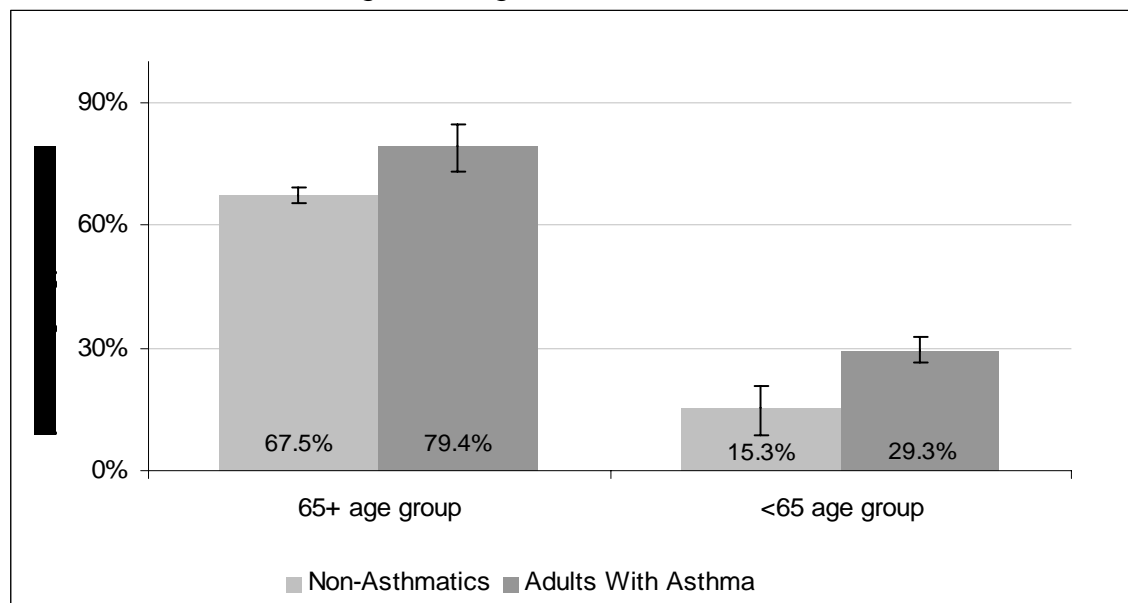
Figure 17: Prevalence of receiving preventive flu vaccines during the past year by age and asthma status, among Washington adults



Source: 2003 Washington State Behavioral Risk Factor Surveillance System (BRFSS).

Pneumonia vaccine is generally given only once. All seniors are advised to get a pneumonia vaccine to prevent disease. Both seniors and younger adults with asthma were more likely than adults without asthma to have ever had a pneumonia shot (see Figure 66, $p<.001$ for both <65 and 65+ age groups).

Figure 18: Prevalence of ever receiving preventive pneumonia vaccine by age and asthma status, among Washington adults



Source: 2003 Washington State Behavioral Risk Factor Surveillance System (BRFSS).

Discussion

Survey data show that quality of health care could be improved. Although clinicians seem to be appropriately targeting people with asthma for receipt of pneumonia vaccine among the elderly, there are missed opportunities. Data for youth show substantial under-utilization of written care plans. Most notably, people with asthma who smoke, who seem motivated to quit, are not well targeted by clinicians for smoking cessation assistance.

D. Association with Other Chronic Disease

Asthma is strongly associated with other types of chronic disease. This means that people with asthma may require treatment not only for asthma, but also for associated conditions. For example, people who have been hospitalized for asthma also have an increased risk of subsequent death from chronic obstructive pulmonary disease (COPD) and cardiovascular disease, and research suggests that these patients require as much attention for their co-morbidity as their asthma. Error! Bookmark not defined.

It is not always clear whether asthma contributes to other conditions, whether other conditions contribute to asthma, or whether both conditions are related to common underlying risk factors (such as smoking). However, regardless of causal mechanisms, healthcare providers should be aware that patients presenting with asthma may have other chronic conditions and comprehensively examine the health of a patient. This includes monitoring multiple (potentially competing) medical therapies, and being aware that patients themselves may be confused by conflicting recommendations when attempting to manage multiple health conditions. For example, patients advised to avoid walking outdoors on days with poor air quality and to avoid high-traffic areas as part of their asthma management plan may be conflicted or simply confused when a different provider

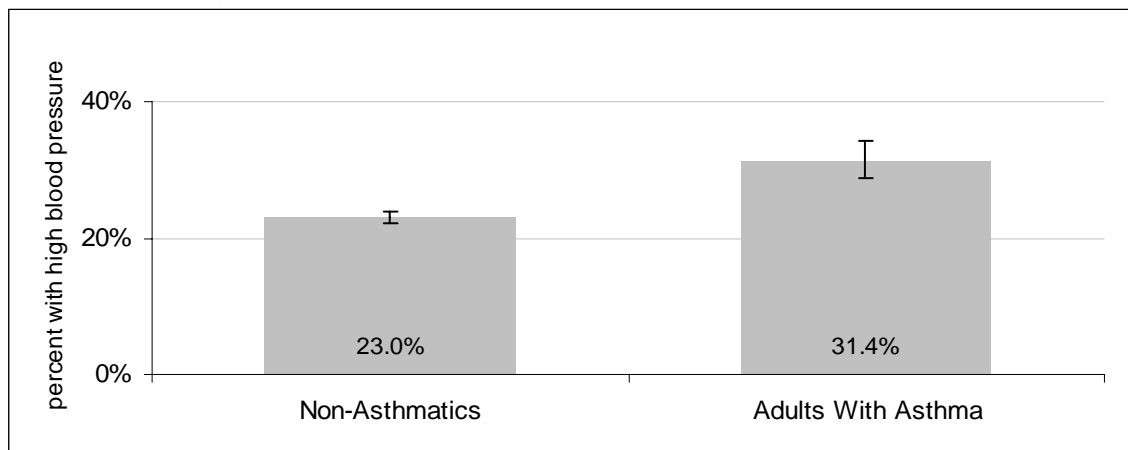
advises them to walk outdoors in order to control weight. Washington data were available to describe associations between asthma and heart disease and diabetes, leading causes of death in Washington.

As noted earlier in this report, adults and youth with asthma report higher rates of depression than do those without asthma. Youth with asthma also reported higher rates of suicide ideation and substance abuse. Healthcare providers should assess for these factors as appropriate.

Cardiovascular Disease

Heart disease is the leading cause of death and stroke is the third leading cause of death among Washington residents.^{ix} In Washington, the prevalence of hypertension (a predictor of cardiovascular disease) was nearly 20 percentage points greater among people with asthma than people without asthma (see Figure 67, $p<.001$).

Figure 19: Prevalence of hypertension by asthma status, among Washington adults

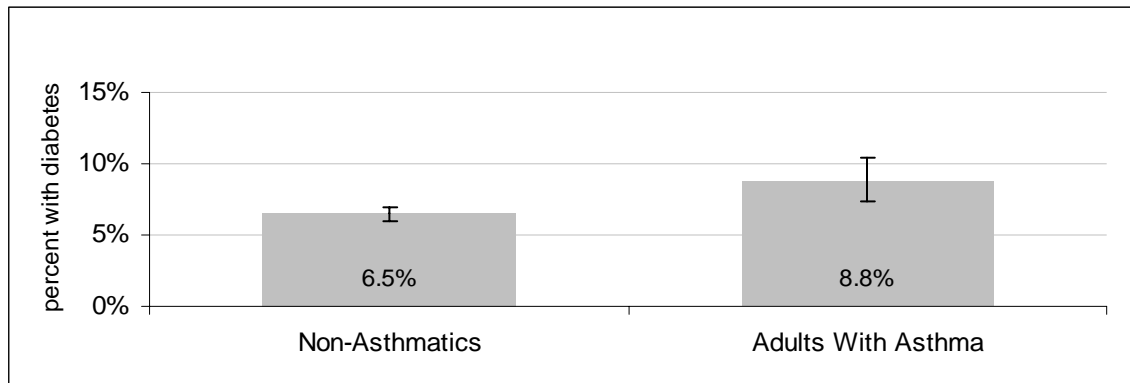


Source: 2003 Washington State Behavioral Risk Factor Surveillance System (BRFSS).

Diabetes

Diabetes was the seventh leading cause of death among Washington residents in 2002. About 7% of Washington adult residents overall have had a doctor's diagnosis of diabetes. Diabetes prevalence was higher among people with asthma than among people without asthma in Washington (see Figure 68, $p=.001$).

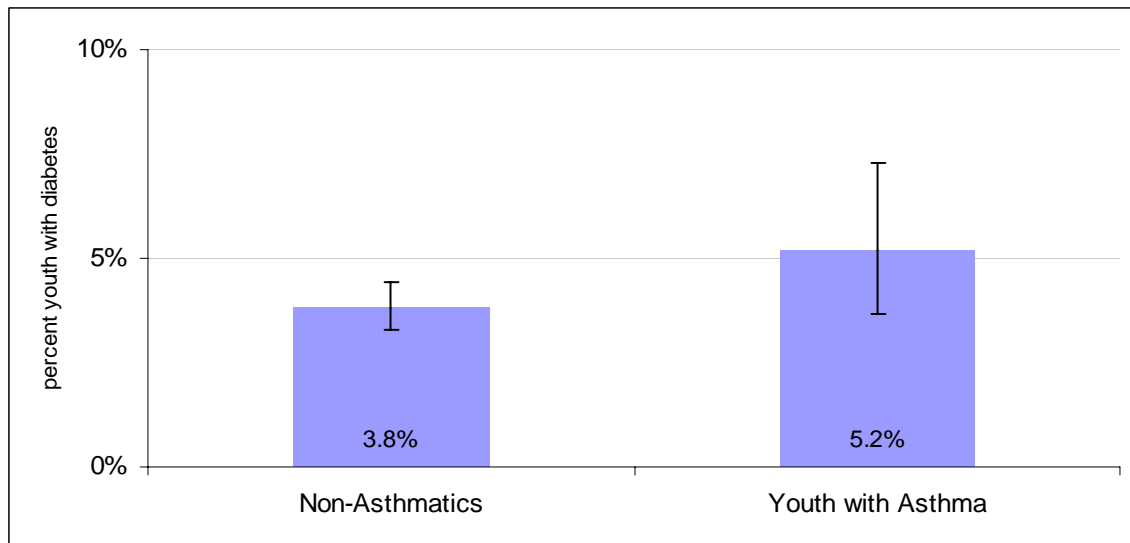
Figure 20: Prevalence of diabetes by asthma status, among Washington adults



Source: 2003 Washington State Behavioral Risk Factor Surveillance System (BRFSS).

Youth with asthma were also more likely to have been diagnosed with diabetes than youth who did not have asthma (see Figure 69, $p=.05$).

Figure 21: Prevalence of diabetes by asthma status, among Washington youth



Source: 2004 Washington State Healthy Youth Survey (HYS), combined results for 8th-10th-12th grade students.

Discussion

People with asthma are more likely than people without asthma to also have hypertension, diabetes and depression. Healthcare providers should target assessment of patients with asthma for these other chronic conditions.

E. School-based Asthma Management for Youth

Management of children with asthma in school settings is critical, because youth spend a great deal of their time in schools and youth (particularly younger children) may be unable to self-manage their symptoms and environments. Schools are therefore an important partner to implement care plans that help youth control their asthma while staying involved in school activities.

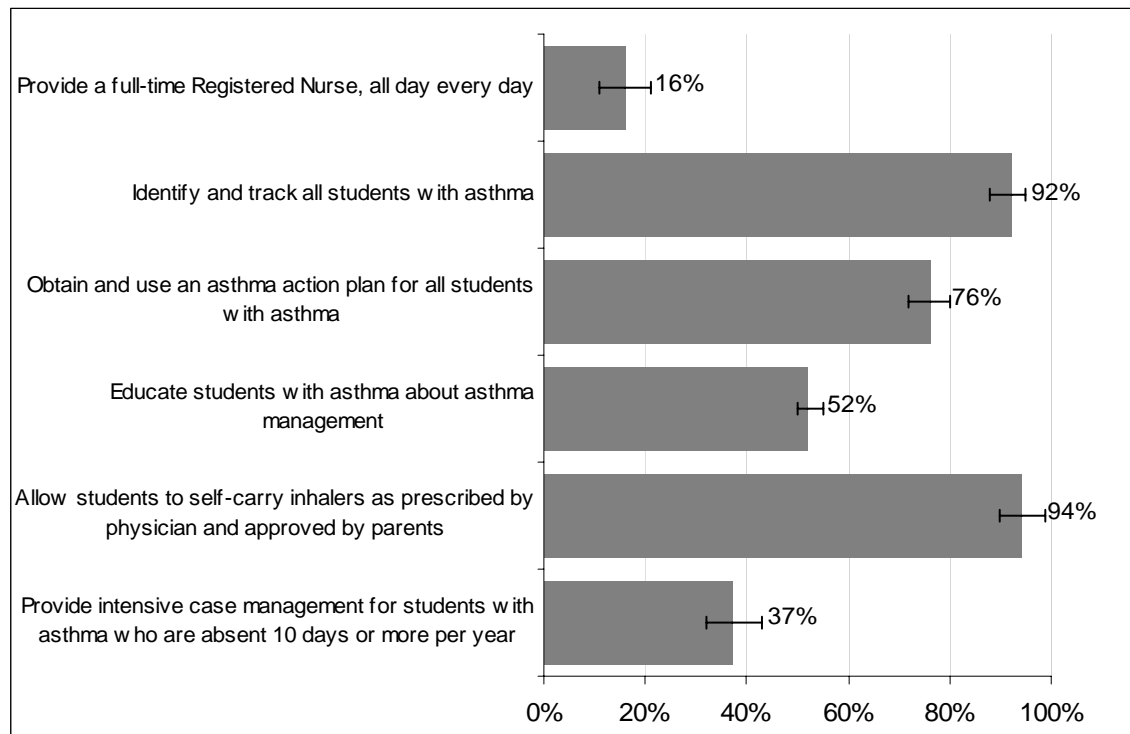
Youth with asthma report higher rates of depression and suicidal ideation than youth without asthma. Asthma among younger youth is also associated with use of cigarettes, inhaled intoxicants and marijuana. School nurses and other school staff should assess for these factors and provide comprehensive support for youth with asthma as appropriate.

Rules, Resources and Procedures

In 2004 a survey of middle and high school principals asked about rules, resources and procedures that relate to management of students with asthma (see Figure 70). No data are available for elementary school settings.

Fewer than one in five school principals reported having a full-time registered nurse at school all day and every day. Typically, in school settings nurses are only available on a part-time basis, with ongoing healthcare support provided by staff without a professional nursing license.

Figure 22: Prevalence of asthma-related policies and practices, among Washington State secondary schools



Source: 2004 Washington State School Health Education Profile (SHEP). [Note: Percentages are of schools, not students.]

Most principals reported that their schools identify and track students with asthma (92%). This was a significant improvement from 86% who reported doing so in 2002. Seventy-six percent reported creating and using asthma action plans for those students identified with asthma, a significant improvement from 62% in 2002.

About half of principals reported educating students with asthma about asthma management, and most (94%) reported allowing students to self-carry their inhalers (“rescue” medication) if approved by the physician and parents. About one-third (37%) reported providing intensive case management when students with asthma were absent ten or more days per year; in Chapter 2 of this report data were presented suggesting that about one in ten youth with asthma missed more than ten days of school per year.

Principals in more than 90% of schools reported that they provided modified physical education alternatives for students when indicated in their asthma action plan (data not shown). Youth who reported having asthma in the Healthy Youth Survey did not report different levels of exercise or fewer days of Physical Education than youth without asthma.

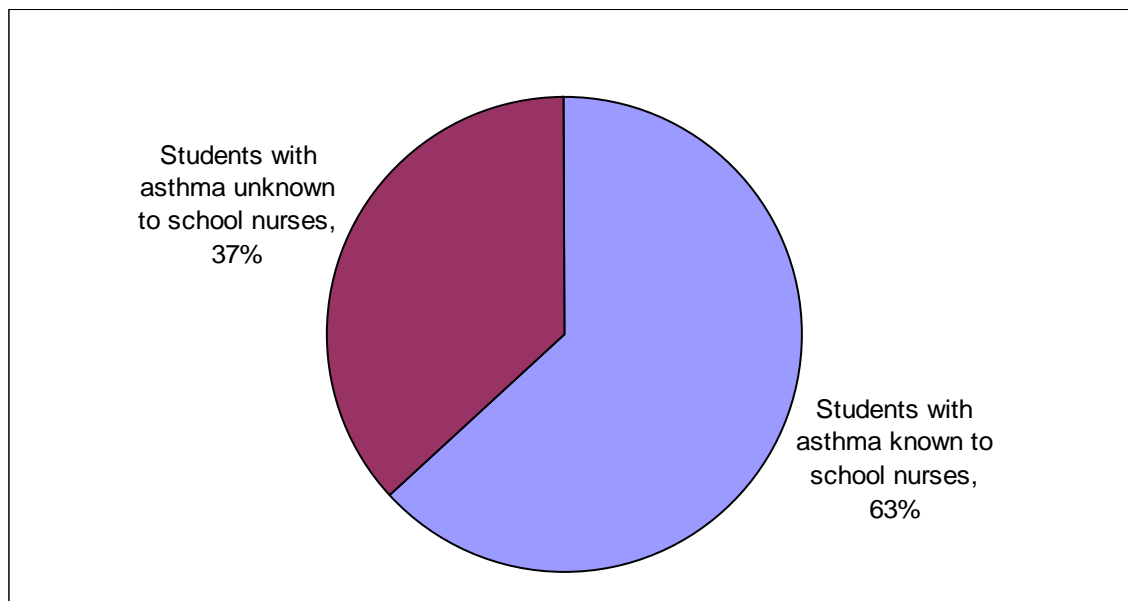
School Nurse Support

School nurses provide support services to students with a variety of health conditions. Typically, parents are asked to provide information at the beginning of the school year if their children have any health conditions that the school should be aware of. Nurses are engaged to help identified students prevent asthma exacerbation through prevention plans, and to plan for what to do in the event of an asthma attack. Most nurses collect data to describe their management of individual students with asthma in elementary, middle and high schools.

It is likely that school nurses are unaware of a significant proportion of students with asthma (about 37% of students with asthma, see Figure 71), potentially due to failure of parents to notify the school about the students' health condition. This estimate is based on a comparison of the number of students who have been identified by their parents as having asthma divided by the estimated number of students with asthma generated using student-reported prevalence from the Healthy Youth Survey.

The estimated asthma prevalence among K-12 students using parent-reported data was about 5% in comparison to 8-9% student asthma prevalence as reported by youth in the 2004 Healthy Youth Survey for grades 6-8-10-12 combined.

Figure 23: Percent students with asthma identified to school nurses, Washington State



Source: Office of the Superintendent of Public Instruction - School Nurse Corps, 2003-04 School Year and 2004 Healthy Youth Survey

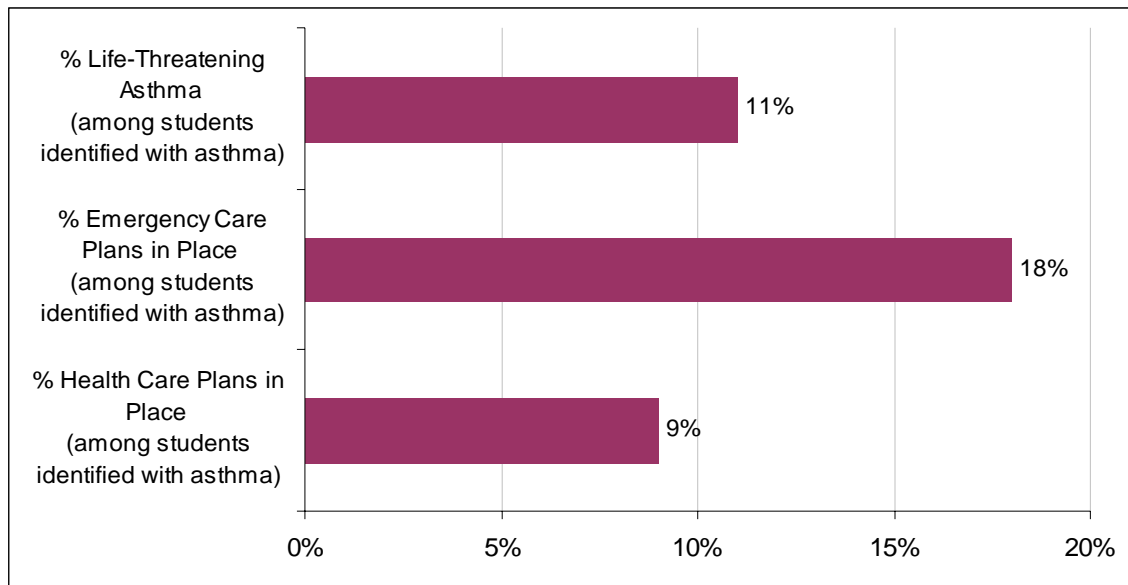
About 11% of the students identified with asthma are classified by school nurses as having “life-threatening asthma” (see Figure 72). This identification is required by state law, but a clear case definition has not been included in law. Instead, “life-threatening condition” is defined as “a health condition that will put the child in danger of death during the school day if a medication or treatment order and a nursing plan are not in

place.”^x Although asthma mortality among school-aged children is very rare, having asthma was associated with a lower quality of life (including depression and suicidal ideation), and uncontrolled asthma was associated with decreased academic achievement among youth [see Chapter 2]. Thus, providing support to all young people with asthma is important regardless of whether their condition is classified as “life-threatening” or not.

School nurses partner with families and healthcare providers to create Healthcare Plans (HCP) that describe any special precautions or accommodations that should be made for a student in normal school routine. For example, plans may describe precautions youth should take during physical education classes or in a chemistry laboratory where chemicals may be present. School nurses also create Emergency Care Plans (ECP) to describe what steps to take and whom to call in the even of an acute asthma event or attack.

Data reported by the School Nurse Corps suggest that ECPs were in place for most students with life-threatening asthma, assuming that students with life-threatening asthma receive priority for these plans (see Figure 72). About half as many youth with asthma had HCPs in place. Lack of resources to provide continuous nursing support, along with challenges to communication among parents, school nurses and healthcare providers are reasons why more prevention plans are not in place for students with asthma, including those not classified as having “life threatening” asthma.

Figure 24: Prevalence of asthma management indicators, among Washington students with asthma who are identified by school nurses



Source: Office of the Superintendent of Public Instruction - School Nurse Corps, 2003-04 School Year

School indoor air quality

Management of children with asthma in school settings must also consider issues of air quality inside the school. These school issues are discussed later in this report, in Chapter VII.

F. Self-Management

Finally, for effective asthma control, patients and their families must be educated and engaged to change their personal environments to remove any agents that trigger asthma attacks (see chapter VII). This information can also be included in the asthma care plan created in partnership with the healthcare provider for the school. The next chapter provides more detail about the types of exposures that are known to trigger or cause asthma attacks.

The core of self-management is the individualized asthma care plan. As noted earlier, Washington state data for adults on written asthma plans are not available. Data for youth on written asthma plans are difficult to interpret. The school principals report that 76% of schools obtain and use an asthma action plan for all students with asthma. But, only about one-third of youth with asthma report that they had received a written asthma plan from their healthcare provider. The school nurses report that only about 9% of the students identified with asthma have a Healthcare Plan. There may be explanations for these discrepancies (such as some overly optimistic reporting by principals, or some overly pessimistic reporting by nurses, or both), but it seems likely that many if not most youth lack coordinated care based on a written care plan that has been shared between their clinical healthcare provider and their school-based healthcare provider. This represents a missed opportunity to promote better self-management for effective asthma control.

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iv Moorman, Jeanne. Senior Epidemiologist, CDC Asthma Surveillance. Presentation from CDC National Asthma Conference. National Jewish Medical Center, Denver CO. February 2005.

v National Heart, Lung and Blood Institute (NHLBI). *Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma*. Bethesda, MD. National Heart, Lung, and Blood Institute; 1997.

vi Fuhlbrigge AL, Adams RJ, Guilbert TW, Grant E, Lozano P, Janson SL, Martinez F, Weiss KB, Weiss ST. 2002. The burden of asthma in the United States: Level and distribution are dependent on interpretation of the National Asthma Education and Prevention Program guidelines. *American Journal of Respiratory and Critical Care Medicine*. 166:1044-49.

vii National Heart, Lung and Blood Institute (NHLBI). *Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma*. Bethesda, MD. National Heart, Lung, and Blood Institute; 1997.

viii CDC NCHS 1998 National Health Interview Survey, as cited in Department of Health & Human Services. *Healthy People 2010*. 2nd ed. Washington, DC: U.S. Government Printing Office, Nov 2000: page 24-18.

ix Washington State Department of Health, Center for Health Statistics. 2002 Death Certificates. Released 10/03. available at: <http://www.doh.wa.gov/ehsph/chs/chs-data/death/2002/2002c2.htm> last accessed 3-12-05.

x Regional Code of Washington (RCW) 28A.210.320. Children with life-threatening health conditions. Washington Administrative Code (WAC) 180-38-045. School attendance conditioned upon presentation of proofs.